

IN THE CLAIMS

1-22. (canceled)

23. (currently amended) An apparatus for supplying fluid at a desired temperature to a heat load, said apparatus comprising:

a cold reservoir containing fluid at a temperature below the desired temperature;

a fluid conduit fluidly connected to the cold reservoir; and

CH a heated bypass loop comprising a heater, a temperature sensor, a heater temperature controller, and a two-way control valve, said loop fluidly connected to the fluid conduit such that a portion of fluid from said fluid conduit is diverted through said heated bypass loop and then returned to said fluid conduit, said temperature sensor sensing a temperature of the portion of fluid exiting said heated bypass loop and providing such temperature to said heater temperature controller, said heater temperature controller comparing such temperature to a setpoint.

24. (original) An apparatus in accordance with Claim 23 further comprising a chiller to chill the fluid in said cold reservoir and a temperature controller to control said heater.

25. (currently amended) An apparatus in accordance with Claim 23 wherein said apparatus two-way control valve is configured to achieve a temperature control precision at the heat load for the supplied fluid of about $\pm 0.1^{\circ}\text{F}$.

26. (original) An apparatus in accordance with Claim 23 wherein said fluid conduit comprises a flow control valve to control the flow rate in said fluid conduit.

27. (currently amended) A method of supplying fluid at a desired temperature to a heat load, said method comprising:

passing a fluid from a cold reservoir containing fluid at a temperature below the desired temperature through a fluid conduit;

passing at least a portion of the fluid in the fluid conduit through a heated bypass loop which includes a heater, a temperature sensor, a programmable temperature controller and a two-way control valve;

heating the fluid in the heated bypass loop;~~and~~

mixing fluid from the heated bypass loop with fluid from the cold reservoir;

sensing a temperature of the portion of fluid exiting the heated bypass loop with the temperature sensor; and

providing such temperature to the programmable temperature controller, the programmable temperature controller controlling the fluid mix to achieve the desired temperature at the heat load with a temperature control precision of about $\pm 0.1^{\circ}\text{F}$.

28. (original) A method in accordance with Claim 27 further comprising a chiller to chill the fluid in the cold reservoir.

29. (canceled)

30. (original) A method in accordance with Claim 27 wherein the fluid conduit includes a flow control valve.

31. (currently amended) A method for controlling temperature of a fluid at a heat load, the fluid circulating through the heat load at flow rates exceeding five gallons per minute, the temperature of the fluid at the heat load being controlled to within ± 0.1 degree F of a desired temperature at the heat load, said method comprising:

providing an amount of fluid that is chilled and maintained at a temperature below a ~~desired temperature to~~ the desired temperature at the heat load;

heating a portion of the fluid to a temperature that is above the desired temperature at the heat load;

sensing a temperature of the combined chilled and heated fluid being supplied to the heat load;

routing both the chilled fluid and the heated fluid to the heat load; and

controlling amounts of chilled fluid and amounts of heated fluid being delivered to the heat load.

32. (canceled)

33. (canceled)

34. (currently amended) A method according to Claim 31 wherein heating a portion of the fluid to a temperature that is above the desired temperature at the heat load comprises routing a portion of the chilled fluid through a heater.

35. (canceled)

36. (currently amended) A method according to Claim 31 further comprising:

measuring a temperature of the chilled fluid using a temperature sensor;

sending the measured temperature to a temperature controller; and

controlling an amount of chilling applied to the fluid in order to maintain an amount of fluid whose temperature is below the desired temperature at the heat load.

37. (previously presented) A method according to Claim 31 further comprising:

measuring a temperature of the heated fluid using a temperature sensor;

sending the measured temperature to a temperature controller; and

controlling an amount of heating applied to the fluid.

38. (previously presented) A method according to Claim 31 wherein controlling amounts of chilled fluid and amounts of heated fluid being delivered to the heat load comprises:

sending a temperature of the combined chilled and heated fluid being supplied to the heat load to a controller; and

controlling a position of a flow control valve with the controller, the valve controlling an amount of heated fluid and an amount of chilled fluid applied to the heat load.

39. (currently amended) An apparatus for controlling temperature of a fluid at a heat load, said method comprising:

a first-fluid reservoir configured to maintain a fluid at a temperature below a fluid temperature desired at the heat load;

a first temperature controller for said first fluid reservoir;

a first temperature sensor configured to transmit a temperature of the fluid in said first fluid reservoir to said controller, said controller configured to adjust a temperature of the fluid in said first fluid reservoir;

a fluid heating portion configured to provide fluid at a temperature above a fluid temperature desired at the heat load;

a second temperature controller for said fluid heating portion;

a second temperature sensor configured to transmit a temperature of the fluid in said fluid heating portion to said controller, said controller configured to adjust a temperature of the fluid in said fluid heating portion;

at least one valve configured to let an amount of the chilled fluid and an amount of the heated fluid flow through the heat load;

a third temperature controller for said heat load; and

CL a third temperature sensor configured to transmit a temperature of the fluid at said heat load to said third controller, said controller configured to adjust a setting of said valve to control a mixing ratio of the chilled fluid and the heated fluid to the heat load, the fluid circulating through the heat load at flow rates exceeding five gallons per minute, the temperature of the fluid at the heat load being controlled to within about +/- 0.1 degree F of ~~a desired temperature~~ the fluid temperature desired at the heat load.

a fluid temperature desired at the heat load

40. (currently amended) An apparatus according to Claim 39 wherein said heating portion comprises at least one of a hot fluid reservoir, a heat exchanger, and a heating loop.

41. (canceled)

42. (previously presented) An apparatus according to Claim 39 wherein said first fluid reservoir comprises a circulation pump to reduce thermal stratification of the fluid within said reservoir.

43. (previously presented) An apparatus according to Claim 39 wherein said controllers are configured with set points, the set point being a desired temperature at a particular location, said controllers configured to return a difference between a measured temperature received from

a sensor and a set point temperature for each said controller, said controllers configured to control a position of a flow control valve.

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